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APPLICATION NUMBER 10001575	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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EXAMINER eb
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ART UNIT	PAPER NUMBER
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DATE MAILED:

This is a communication from the examiner in charge of this application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

NOTICE OF ALLOWABILITY

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

☒ This communication is responsive to the amendment and Declaration of 8-26-04  
☒ The allowed claim(s) is/are 1-3 and 5-27

☐ The drawings filed on \_\_\_\_\_ are acceptable as formal drawings.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

☐ All ☐ Some\* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE FOR SUBMITTING NEW FORMAL DRAWINGS, OR A SUBSTITUTE OATH OR DECLARATION.** ~~This three-month period for complying with the REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL is extendable under 37 CFR 1.106(e).~~

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☐ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. \_\_\_\_\_

☐ including changes required by the proposed drawing correction filed on \_\_\_\_\_, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment or in the Office action of Paper No. \_\_\_\_\_

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any reply to this notice should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Notice of Draftperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☐ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for the Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Claims 1-3, 5 and 6 are allowable over Suscavage et al. (U.S. Patent 6,113,985) since the D'Evelyn Declaration filed under 37 CFR 1.132 on August 26, 2004 supports the argument that Suscavage et al. do not expressly or inherently disclose that the gallium nitride formed according to the CVD process disclosed therein would have equiaxed grains with an average size of between about 0.01 and 50 microns, as recited in applicant's claim 1.

Claims 7-27 are allowable since the prior art does not teach, disclose or suggest the specific method steps recited in these claims for making sintered polycrystalline gallium nitride.

Although Copley et al. (U.S. Patent 4,146,379) discloses a process for obtaining a densified polycrystalline article from a crystalline inorganic compound capable of being densified by sintering, the compound being in fine powder form in which the powder is mixed with a sintering aid, the mixture being compressed to a compact of predetermined shape and then sintered in the presence of atmosphere material having a volatility at least as high as the sintering aid, the sintering aid forming a volatile liquid upon heating to a sufficient temperature for wetting surfaces in the compact and filling channels in the

compact, Copley et al. do not teach, disclose, suggest or provide any motivation for employing the specific temperature and pressure conditions as recited in applicant's claims 7 and 18. Moreover, Copley et al. broadly disclose that the process is useful for obtaining "a densified polycrystalline article from a crystalline inorganic compound capable of being densified by sintering", but do not specifically disclose or suggest the formation of polycrystalline gallium nitride. Copley et al. disclose a list of materials which are candidates for the process at column 9, lines 52-61, but do not disclose gallium nitride in the list disclosed thereat. Regarding claims 1-3, 5 and 6, it would not be obvious to treat gallium nitride as the crystalline inorganic compound to obtain densified polycrystalline gallium nitride in the process of Copley et al., since applicant's specification discloses on page 3, lines 20-36 that gallium metal is employed as a liquid-phase sintering aid to result in the production of the polycrystalline gallium nitride, that metallic gallium is formed by the partial decomposition of the gallium nitride powder feed, and that decomposition of gallium nitride is negligible below about 900°C. Accordingly it is apparent that Copley et al. do not contemplate the production of polycrystalline gallium nitride, since Copley et al. disclose sintering aids which do not include gallium metal in the

paragraph bridging columns 9 and 10. There is no technical reason for concluding that polycrystalline gallium nitride formed according to the process of Copley et al. would have the properties as recited in applicant's claim 1, assuming arguendo that it would be prima facie obvious to employ gallium nitride as the "crystalline inorganic compound capable of being densified by sintering" in their process, considering the differences in the method disclosed by Copley et al. and that disclosed in applicant's specification.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (571) 272-1353. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (571) 272-1358. The fax phone number for this Group is (703) 872-9306.

Serial No. 10/001,575

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Art Unit 1754

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or public PAIR. Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WAL:cdc

September 13, 2004

*Wayne A. Langel*  
WAYNE A. LANGEL  
PRIMARY EXAMINER